

Serial No. 10/731,392

In the Claims:

1. (previously presented) A lighting assembly comprising:
a light emitting diode package including:
a front luminescent portion having a central axis,
a mounting base,
a heat transfer plate on a rear surface of said mounting base, and
a first and second contact lead extending from the sides of said mounting base;
a heat sink assembly including:
a mounting die having a first end, a second end opposite said first end, a longitudinal axis extending between said first and second ends and an alignment guide on said first end, said mounting die being electrically conductive and thermally conductive, wherein said alignment guide positions said light emitting diode package such that said central axis of said luminescent portion is substantially aligned with said longitudinal axis of said mounting die and said heat transfer plate is in thermal communication with said mounting die; and
a lens received adjacent said luminescent portion of said light emitting diode package for directing light output from said light emitting diode package forwardly along an optical axis.
2. (previously presented) The light emitting diode lighting assembly of claim 1, further comprising:

Serial No. 10/731,392

an aperture in said mounting die extending from said first end of said mounting die to said second end, wherein said first contact lead of said light emitting diode is in electrical communication with said mounting die and said second contact lead of said light emitting diode extends into said aperture.

3. (original) The light emitting diode lighting assembly of claim 2, further comprising:

a circuit board mounted adjacent said second end of said mounting die, said circuit board including electrical circuit traces printed on one side thereof, said second contact lead of said light emitting diode in electrical communication with said circuit traces.

4. (original) The light emitting diode lighting assembly of claim 3, wherein said circuit board includes control circuitry in electrical communication with said circuit traces.

5. (previously presented) The light emitting diode lighting assembly of claim 3, further comprising:

an exterior enclosure, said exterior enclosure having a tubular outer wall, said outer wall forming a cavity for receiving and maintaining said mounting die, said light emitting diode and said lens in assembled relation; and

a power source having first and second contact leads, said first contact lead in electrical communication with said mounting die and said second contact lead in electrical communication with said circuit traces.

Serial No. 10/731,392

6. (previously presented) The light emitting diode lighting assembly of claim 1, said lens including, a total internal reflection collector portion, said collector portion of said lens comprising:

a rear surface;

an outer side wall; and

a cavity extending into said collector portion from said rear surface, said cavity having an inner side wall and a front wall, said front luminescent portion disposed substantially within said cavity.

7. (previously presented) The light emitting diode lighting assembly of claim 1, further comprising:

an exterior enclosure, said exterior enclosure having a tubular outer wall, said outer wall forming a cavity for receiving and maintaining said mounting die, said light emitting diode and said lens in assembled relation; and

means for connecting a power source having first and second contact leads with said first and second contact leads of said light emitting diode.

8. (previously presented) A lighting assembly comprising:

a light emitting diode package including:

a front luminescent portion having a central axis,

a mounting base,

a heat transfer plate on a rear surface of said mounting base, and

a first and second contact lead extending from the sides of said mounting base;

Serial No. 10/731,392

an interior mounting die having a first end, a second end opposite said first end and a longitudinal axis extending between said first and second ends, said interior die being electrically conductive and thermally conductive, said interior die having a recess in a first side thereof configured to receive and retain said mounting base of said light emitting diode, wherein said central axis of said luminescent portion is substantially aligned with said longitudinal axis of said interior die and said heat transfer plate is in thermal communication with said first side of said interior die, said interior die having at least one aperture therein extending from said first side of said interior die to a second side of said interior die opposite said first side, one of said contact leads of said diode extending into said aperture;

a lens for directing light output from said light emitting diode forwardly along an optical axis, said lens including, a total internal reflection collector portion, said collector having a recess therein where in said luminescent portion of said light emitting diode is received within said recess; and

an exterior enclosure, said exterior enclosure having a tubular outer wall, said outer wall forming a cavity for receiving and maintaining said interior mounting die, said light emitting diode and said lens in assembled relation.

9. (original) The light emitting diode lighting assembly of claim 8, further comprising:

a mounting board installed adjacent said second side of said interior mounting die.

Serial No. 10/731,392

10. (original) The light emitting diode lighting assembly of claim 9, wherein said mounting board is a circuit board with electrical circuit traces printed on one side thereof, said second contact lead of said light emitting diode in electrical communication with said circuit traces.

11. (original) The light emitting diode lighting assembly of claim 10, wherein said circuit board includes control circuitry in electrical communication with said circuit traces.

12. (original) The light emitting diode lighting assembly of claim 8, further comprising:

a power source having first and second contact leads, said first contact lead in electrical communication with said mounting die and said second contact lead in electrical communication with said second contact of said light emitting diode.

13. (currently amended) A light emitting diode lighting assembly comprising:

a light emitting diode having a front luminescent portion having a central axis and a mounting base, said mounting base having a heat transfer plate on a rear surface thereof and a first and second contact lead extending from the sides thereof;

a heat sink assembly, said heat sink assembly being thermally conductive, said heat sink assembly having a front surface and a rear surface, said heat sink assembly having a longitudinal axis extending from said front surface to said rear surface, an alignment guide in said rear surface thereof and an aperture extending from said alignment guide to said front surface of said heat sink, said alignment guide being configured to receive said mounting base of said light emitting diode, wherein said

Serial No. 10/731,392

luminescent portion of said light emitting diode extends through said aperture and said central axis is in substantial alignment with said longitudinal axis;

a spreader plate, said spreader plate being thermally conductive, said spreader plate in thermal communication with said heat transfer plate of said light emitting diode and said rear surface of said heat sink assembly, wherein said spreader plate retains said light emitting diode in said ~~recess~~ alignment guide and conducts heat from said light emitting diode to said heat sink assembly; and

a lens for directing light output from said light emitting diode forwardly along an optical axis, said lens including a total internal reflection collector portion at a first end thereof, said collector having a focal length and a recess therein where in said luminescent portion of said light emitting diode is received within said recess.

14. (original) The light emitting diode lighting assembly of claim 13, further comprising:

a circuit board adjacent to said spreader plate, said circuit board in electrical communication with said first and second contact leads of said light emitting diode.

15. (original) The light emitting diode lighting assembly of claim 13, said collector portion of said lens comprising:

a rear surface;

an outer side wall; and

a cavity extending into said collector portion from said rear surface, said cavity having an inner side wall and a front wall, said light source disposed substantially within said cavity.